



# Early Lightning Detection System

## Why in News?

According to the sources, The **Uttar Pradesh government** plans to establish an **early lightning detection and warning system**.

- This system **aims to avert casualties caused by [lightning strikes](#)** in the state, particularly during the monsoon period.

## Key Points

- According to an [India Meteorological Department \(IMD\)](#) report **Uttar Pradesh ranks** among the states with the **highest lightning strike casualties in the country**.
- On the direction of the chief minister, the [State Disaster Management Authority \(SDMA\)](#), decided to **set up a state-of-the-art lightning detection system** based on [time of arrival \(ToA\) technology](#), which is more time and location accurate, across the state.
  - The **IMD currently relies on [radar-based systems](#) and [satellite data](#)** to warn about the possibility of lightning strikes in an area but it is **not considered a real-time warning**.
  - The **ToA-based system can successfully detect and warn** about the possibility of lightning in a particular area at least **30 minutes in advance**.
- The **Uttar Pradesh Lightning Alert Management System** will be set up in **three phases**.
  - In the **first phase**, it will be implemented in **37 districts**.
  - It is expected to be set up in **20 and 18 districts** respectively in the **second and third phases**.

## Radar (Radio Detection and Ranging)

- It is a device which **uses electromagnetic waves in the microwaves region** to detect **location (range & direction), altitude, intensity and movement** of moving and non-moving objects.

## India Meteorological Department

- IMD was **established in 1875**. It is the **National Meteorological Service** of the country and the principal government agency in all **matters relating to meteorology and allied subjects**.
  - It works as an **agency of the Ministry of Earth Sciences** of the Government of India.
- It is headquartered in **New Delhi**.
- IMD is also one of the **six Regional Specialized Meteorological Centres of the [World Meteorological Organization](#)**.

